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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD PROJECT OFFICE
712 SWIFT BOULEVARD, SUITE 5
RICHLAND, WASHINGTON 99352

0035542

April 4, 1994

Steven H. Wisness
Tri-Party Agreement Manager
U.S. Department of Energy
P.O. Box 550, A5-15
Richland, Washington 99352

Re: Environmental Restoration Disposal Facility Conceptal Design Report - Region X Comments

Dear Mr. Wisness:

Attached are the U.S. Environmental Protection Agency Region X comments for the Environmental Restoration Disposal Facility Conceptual Design Report.

If you have any questions, please call me at (509) 376-4919.

Sincerely,

Pamela S. Innis
Unit Manager

Enclosure

cc: Bryan Foley, DOE
Michael Collins, DOE
Norm Hepner, Ecology
Jeff Ross, PRC
Bill Lum, USGS
Vern Dronen, WHC
Mike Casbon, WHC
Becky Austin, WHC
Administrative Record (ERDF File)

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RICHLAND, WASHINGTON 99352

Reply to
Attn. of: HW-106

MEMORANDUM

SUBJECT: Hanford-ERDF

FROM: Catherine Massimino
Senior RCRA/Superfund
Technical Specialist

TO: Pamela Innis
Engineer

This is in response to your request for assistance in reviewing DOE's "Conceptual Design Report For The Environmental Restoration Disposal", dated February 18, 1994. In performing this review, I also evaluated the following support documents: (1) Engineering Study For The Volume Reduction System Dewatering and Stabilization System For The Environmental Restoration Storage And Disposal Facility, July 29, 1993, (2) On-Site Transportation Network Engineering Study For The Environmental Restoration Storage and Disposal Facility, August 13, 1993, (3) Engineering Study For The Conveyor and Area Fill Systems For The Environmental Restoration Disposal Facility, October 6, 1993, (4) Engineering Study For The Trench And Engineered Barrier Configuration For The Environmental Restoration Storage And Disposal Facility, August 6, 1993, (5) Permanent Isolation Surface Barrier Development Plan, January 1994, (6) Barrier Analogs: Long Term Performance Issues, Preliminary Studies, and Recommendations, February 1994, (7) Water Erosion Field Tests For Hanford Protective Barriers: FY 1992 Status Report, November 1993, (8) Report on Value Engineering Study of Permanent Isolation Surface Barrier and Warning Marker System Development Plan At The Hanford Site, February 1993. Based on my review I would like to offer the following comments:

1. Page 21, §5.2, add to soil foundation evaluation the following soil properties:

   shear strength
   compressibility index

2. Page 28, §5.2.2.1, should specify that chemicals used for decontamination would be subject to regulatory review and acceptance. It will need to be documented that the decontamination solutions are not toxic, as well treatable in the waste water treatment system. The effectiveness of the decontamination solutions for non-rad constituents must also be addressed.

3. Page 31, §5.2.2.4.6, need to specify whether a drainage layer will be placed above the liner and whether a geotextile will be used to protect the liner from damage.

4. Page 31, §5.2.2.4.6, it is discussed under this section that it may not be necessary to decontaminate the exterior of the container if the radiation levels are acceptable and the possibility of not needing to check for radiation levels if overtime it is not determined to be a problem. Considering waste diversity on-site and the potential implications of handling materials with high radiation levels the requirement is to at a minimum check for radiation levels automatically and manually should not be eliminated. Also the issue of whether decontamination is still needed for high levels of other hazardous constituents on the exterior needs to be addressed here.

5. Page 32, §5.2.2.7, the proposed HVAC system does not address organic constituents. Recommend the addition of a carbon bank to the HVAC system to address this potential emission source.

6. §5.2.3, it is likely that the trench leachate will be a much more concentrated stream than the decontamination wastewater, with respect to radiation and other contaminates, and consequently more difficult to treat. It is also likely that decontamination wastewater will be a larger volume stream. An evaluation of whether separate treatment options for these streams would make more sense needs to be evaluated addressing both the radioactive and hazardous constituent components of the streams.

7. §5.4, page 44, will debris be treated in accordance with the August 18, 1992, debris rule prior to delivery to the ERDF for disposal?

8. §5.4.1, page 45, recommend the addition of the following project requirement:

   Minimize the impact of adverse weather events such as heavy winds and flash flood events.

9. §5.4.2, page 45, amend to include §264.19 and §264.301 updated to include amendments promulgated on January 29, 1992, pursuant to HSWA (effective July 29, 1992) that have yet to be adopted by Washington Department of Ecology. These requirements are currently effective in the State of Washington.

10. §5.4.3, need to clarify that a less steep slope than 3:1 will be used if dictated by slope failure analysis, incorporating actual foundation soil strength properties and inclusion of adequate safety factors.

11. §5.4.3.2, need to specify to a minimum transmissivity of 3 X 10-5 m2/sec. for the geonet, a minimum permeability of 1 X 10-2 cm/sec. for the gravel layers, and a minimum constructed bottom slope of one percent.

12. §5.4.3.3, page 45, the sizing of the leachate collection system must also be specified for meeting the requirements under §§264.301(c)(2) and (3).

13. §5.4.3.4, page 47, the inclusion of debris which may have sharp edges should be avoided in the first lift and along the side slopes of the trench to minimize potential damage to the liner system.

14. §5.4.3.4, page 47, §7.5.1.4, page 68, dust suppressants to be utilized in the trench need to be reviewed and accepted by the regulatory agencies. These dust suppressants need to be documented to be compatible with the wastes and waste containers placed in the trench, treatable in the wastewater treatment system, and an application rate consistent with the goal of minimizing introduction of liquids into the trench.

15. §5.4.3.7, page 48, interim cover material selection should also take into consideration its effects on leachate quality (e.g., introduction of petroleum products) and its treatability in the waste water treatment system. This section should also reflect that the definitive design would also evaluate installation of a mobile cover structure over the trench. This issue may become even a more critical element of any final scenario which does not incorporate a trench liner in the design.

16. §5.4.3.8, pages 48 and 49, this section needs to be revised to reflect that cover system described has yet to be accepted as RCRA compliant by the regulatory agencies. The RCRA equivalency demonstration has yet to be completed. For example, the equivalency testing and development of adequate CQA procedures for the proposed cover, as described in §4.2.13 of document 8 has yet to be completed.

17. §5.5 and §6.4, equipment described in these sections do not include that needed to construct the trench or the trench cover (e.g., liner welding equipment, low permeability layer compaction equipment, etc.).

18. §5.5.2, page 50, using the information on page 30 on the containers dimensions, empty weight of 10,000 pounds and the information on this package that the loaded container will weigh 100,000 pounds, the weight of the waste in the container is limited to 75 pounds/cubic foot. This is on the low end for soils which could range from about 80 pounds/cubic foot (e.g., minimum dry weight of inorganic silts) to 146 pounds/cubic foot (e.g., maximum dry weight of silty sand and gravel. How does the waste weight of 75 pounds/cubic foot correlate with the wastes expected for the site? What procedures will be put into place to assure that the containers are not overloaded. The expected radiation leakage rate of the container when filled, as compared to the maximum acceptable for transport, should also be addressed somewhere in the plan.

19. §7.2.2, page 65, under measures to prevent uncontrolled release of radioactive/hazardous constituents during and after trench operation should include ceasing operations during severe adverse weather conditions such as heavy winds, storm events exceeding storm water system design event, flash flooding, etc.

20. §7.6.1, page 76, should also reference, "Technical Guidance Document Quality Assurance and Quality Control for Waste Containment Facilities", EPA/600/R-93/182 and "Design, Construction, and Evaluation of Clay Liners for Waste Management Facilities, EPA/530/SW-86/007F.

21. Appendix A, should address the following:

    a. whether F020, F021, F022, F023, F026, F027 wastes will be allowed in the trench and if so the requirements under §264.317 need to be addressed in the plan.

b. whether ignitable, reactive, or incompatible wastes will be allowed in the trench and if so the requirements under §§264.312-313.

c. LDR

22. Appendix D4, CF122, January 27, 1994, letter from Golder, the parameters and testing frequencies evaluated for the trench construction activities should be reassessed and amended utilizing the QA/QC guidances referred to in comment 20 above, when the detailed QA/QC plan is prepared.

23. Appendix D6, CF124, the design package must include the engineering calculations to support the adequacy of the design (e.g., slope failure analysis, loading and stress calculations, etc.), and to support material selections (e.g., thickness of the HDPE, the weight of the geotextile, etc.). These calculations for the trench need to address construction, operation, and closure.

24. Appendix F, need to include the field permeability testing of the low-permeability bentonite soil mixture in accordance with §264.19 and the guidances referred to in comment 20 above.